

CLAIMS

1. A recording medium characterized in that a track is divided into a first area that is continuously wobbled by a first wobble of a specific carrier wave cycle, and a second area that is wobbled by a second wobble that has a cycle different from said first wobble and a phase determined in response to data 0 and data 1 of information stored by a wobble.

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2. Recording medium according to claim 1, wherein said second wobble is assigned to phases that are different by 180 degrees, respectively, in response to the data 0 and the data 1 of the information stored by the wobble.

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3. A recording medium characterized in that a track is divided into a first area that is continuously wobbled by a first wobble of a specific carrier wave cycle, a second wobble that has a cycle different from said first wobble and a phase determined in response to data 0 and data 1 of information stored by a wobble, and a second area in which a generating position of said second wobble is also determined in response to said information.

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4. The recording medium according to claim 3,
wherein a relative generating position of said second
wobble is changed by a length of the second wobble in
accordance with data 0 and data 1 of the information
5 stored by the wobble, and are assigned to phases that
are different from each other by 180 degrees.

5. The recording medium according to claim 1,
wherein a cycle of said second wobble is an integral
10 multiple of a carrier wave cycle.

6. The recording medium according to claim 1,
wherein a cycle of said second wobble is twice a carrier
wave cycle.
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7. The recording medium according to claim 1,
wherein a length of said second wobble is twice a
carrier wave cycle.

8. The recording medium according to claim 1,
wherein a third area containing a third wobble is formed,
the third wobble being distinguishable from said first
wobble and said second wobble.
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9. The recording medium according to claim 8,
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wherein the third wobble has the carrier wave cycle and has a form having a phase different from the first wobble by 180 degrees.

5 10. The recording medium according to claim 8, wherein said third area is arranged immediately before said second area.

10 11. The recording medium according to claim 8, wherein said first area is arranged immediately before said third area.

15 12. The recording medium according to claim 11, wherein a length of the first area arranged immediately before said third area is equal to or more than five times the carrier wave cycle.

20 13. The recording medium according to claim 8, wherein said third area is arranged at a fixed interval, and said second area is arranged intermittently and adjacent to said third area.

25 14. The recording medium according to claim 13, wherein a length of the third area located adjacent to said second area and a length of the third wobble of

the third area arranged independently and separately from the second area are different.

15 15. The recording medium according to claim 1,
 wherein a number of wobbles between said second wobbles
 is an even number on the basis of the carrier wave as a
 reference.

10 16. The recording medium according to claim 1,
 wherein a number of wobbles between said second areas is
 an odd number on the basis of the carrier wave, and a
 polarity of the information stored in the second area is
 reversed alternately for each second area and recorded.

15 17. The recording medium according to claim 1,
 wherein a number of wobbles between said third areas is
 equal to or more than ten times a length of a sum of a
 length of the second area and a length of the third area
 on the basis of the carrier wave as a reference.

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 18. The recording medium according to claim 8,
 wherein a fourth wobble is arranged in a fourth area
 located at a position separate from said third area by a
 predetermined carrier wave cycle, a phase and the a
25 generating position of the fourth wobble being fixed

irrespective the information stored by the wobble, the fourth wobble having a twice cycle and a twice length of the carrier wave cycle.

5 19. A recording medium characterized in that
a track is divided into a first area continuously
wobbled by a first wobble of a specific carrier wave
wobble, a third area containing a third wobble that has
the same cycle as said first wobble and has a phase
10 different from said first wobble by 180 degrees, the
third area having a length four times said specific
carrier wave cycle, and a second area including a second
wobble having a twice cycle and a twice length of said
specific carrier wave and assigned to phases different
15 by 180 degrees, respectively, in response to data 0 and
data 1 of information stored by a wobble, wherein said
third area is arranged immediately before or adjacent to
said second area.

20 20. The recording medium according to claim
19, wherein a number of wobbles between said third areas
is equal to or greater than 60 on the basis of the
carrier wave as a reference.

25 21. A recording medium characterized in that

a track is divided into a first area continuously wobbled by a first wobble of a specific carrier wave wobble, a third area containing a third wobble that has the same cycle as said first wobble and has a phase
5 different from said first wobble by 180 degrees, the third area having a length four times said specific carrier wave cycle, and a second area including a second wobble having a twice cycle and a twice length of said specific carrier wave, a relative generating position
10 thereof being a position distant by twice the carrier wave cycle, the second wobble being assigned to phases different by 180 degrees, respectively, in response to data 0 and data 1 of information stored by a wobble, wherein said third area is arranged immediately before
15 or adjacent to said second area.

22. The recording medium according to claim 21, wherein a number of wobbles between said third areas is equal to or greater than 80 on the basis of the
20 carrier wave as a reference.

23. The recording medium according to claim 19, wherein the third wobble of said third area has a one-cycle length or four-cycle length of said specific
25 carrier wave period, and the third wobble of said third

area arranged immediately before or adjacent to said second area has said one-cycle length and others have said four-cycle length.

5 24. A wobble cycle detection method
characterized by multiplying wobble signals of the same
signal obtained from wobbling of a track formed on a
recording medium each other by a multiplier, and
inputting a signal obtained by an operation of the
10 multiplication into a band pass filter of which a pass
band is set to about twice a frequency of a carrier wave
so that a cycle twice an output signal of the band pass
filter is set to a cycle of the carrier wave of the
wobble signal.

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 25. A wobble information detection method
characterized by a carrier wave processing procedure of
extracting a frequency component of the first wobble
from the first area of the recording medium according to
20 claim 1, a special wave processing procedure of
extracting a phase information component of the second
wobble from the second area of said recording medium, an
information detecting procedure of detecting the
information stored by the wobble from the phase
25 information component extracted by said special wave

processing procedure based on the frequency component
extracted by said carrier wave processing procedure.

26. A wobble information detection method
5 characterized by a carrier wave processing procedure of
extracting a frequency component of the first wobble
from the first area of the recording medium according to
claim 8, a special wave processing procedure of
extracting a phase information component of the second
10 wobble from the second area of said recording medium, a
synchronization processing procedure of extracting a
phase information component of the third wobble of the
third area of said recording medium, and an information
detecting procedure of detecting the information stored
15 by the wobble from the phase information components
extracted by said special wave processing procedure and
said synchronization processing procedure based on the
frequency component extracted by said carrier wave
processing procedure.

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27. A wobble information detection method
characterized by a carrier wave processing procedure of
extracting a frequency component of a first wobble from
the first area of the recording medium according to
25 claim 1 and generating a clock of at least twice the

specific carrier cycle, a special wave processing
procedure of extracting a phase information component of
the second wobble from the second area of said recording
medium based on at least the clock of twice said
5 specific carrier wave cycle, and an information
detecting procedure of detecting the information stored
by the wobble from the phase information component
extracted by the special wave processing procedure.

10 28. A wobble information detection method
characterized by a carrier wave processing procedure of
extracting a frequency component of a first wobble from
the first area of the recording medium according to
claim 8 and generating clocks of said specific carrier
15 cycle and twice said specific carrier frequency, a
special wave processing procedure of extracting a phase
information component of the second wobble from the
second area of said recording medium based on at least
the clock of twice said specific carrier wave cycle, a
20 synchronization processing procedure of extracting a
phase information component of the third wobble from the
third area of said recording medium based on the clock
of said specific carrier wave cycle, and an information
detecting procedure of detecting the information stored
25 by the wobble from the phase information component

extracted by said special wave processing procedure in said second area of which position is specified based on the phase information component extracted by the synchronization processing procedure.

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29. The wobble information detection method according to claim 27, wherein both a first demodulation and a second demodulation are performed in said second area, the first demodulation for detecting a phase or a frequency of the a wobble signal based on the clock of said specific carrier wave cycle, the second demodulation for detecting a phase or a frequency of the wobble signal based on the clock of twice said specific carrier wave cycle, and determines the data 0 and the data 1 of the information stored by the wobble based on results of both said demodulations.

30. A wobble information detection circuit characterized by comprising a wobble cycle detection circuit that detects a cycle of the carrier wave from a wobble signal obtained from wobbling of the track formed on the recording medium according to claim 1, a clock signal generation circuit that generates a second clock signal of a twice cycle of the carrier wave based on the cycle of the carrier wave detected by the wobble cycle

detection circuit, and a special wave wobble detection circuit that indicates a position or a phase of the second wobble of said second area based on said second clock signal.

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31. A wobble information detection circuit characterized by comprising a wobble cycle detection circuit that detects a cycle of the carrier wave from a wobble signal obtained from wobbling of the track formed on the recording medium according to claim 8, a clock signal generation circuit that generates a first clock signal of a cycle of the carrier waver and a second clock signal of a twice cycle of the carrier wave based on the cycle of the carrier wave detected by the wobble cycle detection circuit, a synchronization signal detection circuit that detects a synchronization signal indicative of the third wobble of said third area based on said first clock signal, a position signal generation circuit that generates a position signal indicative of said second area on the basis of said synchronization signal as a reference, and a special wave wobble detection circuit that indicates a position or a phase of the second wobble of said second area based on said second clock signal in accordance with said position

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signal.

32. The wobble information detection circuit according to claim 31, wherein a phase or a polarity of said second clock signal is detected for each generation of said synchronization signal so as to match said
5 second clock signal to a desired phase or polarity in accordance with a result thereof.

33. The wobble information detection circuit according to claim 31, wherein a phase or a polarity of
10 said second clock signal is detected for each generation of said synchronization signal so as to determine a polarity of data demodulated from said second area in accordance with a result thereof.

15 34. The wobble information detection circuit according to claim 31, wherein a fourth wobble of said fourth area in said recording medium is demodulated based on said second clock signal so as to match said second clock signal to a desired phase or polarity in
20 accordance a result thereof.

35. The wobble information detection circuit according to claim 31, wherein a fourth wobble of said fourth area in said recording medium is demodulated
25 based on said second clock signal so as to determine a

polarity of data demodulated from said second area in accordance with a result thereof.

36. An information recording and reproduction
5 apparatus characterized by being mounted with the wobble
information detection circuit according to claim 30,
wherein an access is made to a target position of said
recording medium based on information detected by the
wobble information detection circuit so as to perform
10 recording or reproduction of information on said
recording medium.

37. An information recording and reproduction
apparatus characterized by comprising an optical pickup
15 that irradiate a laser light onto the recording medium
according to claim 1 and detects a reflection signal
from said recording medium, a rotational drive mechanism
part that rotationally drives said recording medium, a
servo control system that controls a position of said
20 optical pickup and a rotation of said recording medium
by said rotational drive mechanism part based on
detection information detected by said optical pickup,
and information detecting means for detecting a position
signal necessary for the servo control system and
25 information stored in said recording medium based on the

detection signal detected by said optical pickup,
wherein the information detected by said information
detecting means is detected so as to perform recording
and reproduction of information on said recording medium.